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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,080	02/04/2004	Katherine H. Guo	GUO 11-7-8	4523

46363 7590 01/05/2009  
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EXAMINER
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CHAMBERS, TANGELA T

ART UNIT	PAPER NUMBER
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2617

MAIL DATE	DELIVERY MODE
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01/05/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/772,080	<b>Applicant(s)</b> GUO ET AL.	
	<b>Examiner</b> TANGELA T. CHAMBERS	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 11-22 is/are rejected.
- 7) ☒ Claim(s) 6-10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This action is in response to the application filed on February 4, 2004.
2. Claims 1-22 are pending.

#### ***Priority***

3. Acknowledgment is made of applicant's claim for domestic priority which provides a priority date of February 26, 2003.

#### ***Information Disclosure Statement***

4. The IDS' filed September 2, 2004 and July 15, 2008 have been acknowledged by the examiner.

#### ***Drawings***

5. **The drawings are objected to because of the following informalities:**

Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: step 599 and step 999. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the

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sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a) because they fail to show step 518 and step 301 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Appropriate corrections are required.

### ***Specification***

**6. The disclosure is objected to because of the following informalities:**

In the abstract, line numbers have been included and should be removed.

In the abstract, the first occurrence of the acronym "IP" should be spelled out with the acronym appearing in parenthesis.

Appropriate corrections are required.

### ***Claim Objections***

**7. The claims are objected to because of the following informalities:**

In claim 1, the first occurrence of the acronym "IP" should be spelled out with the acronym appearing in parenthesis.

In claim 22, there should be a colon (:) after the word "comprising" at the end of the preamble.

Appropriate corrections are required.

### ***Claim Rejections - 35 USC § 112 Second Paragraph***

**8. The following is a quotation of the second paragraph of 35 U.S.C. 112:**

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-20 recite the limitation "a method" but are dependant upon claim 11 which is a system claim. There is insufficient antecedent basis for this limitation in the claim. It is suggested that claims 12-20 be rewritten to with the word "method" changed to "system architecture".

### ***Claim Rejections - 35 USC § 103***

**9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-5, 11-15 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lor et al, (Lor) (US Patent Publication No. 2004/0068668 A1), in view of Zargham et al (Zargham) (US Patent Publication No. 2003/0229613 A1).

As per claims 1-2, 11-12 and 22, Lor discloses:

- **identifying a set of virtual private network (VPN) customers**, (Lor, Abstract, Paragraphs [0010] and [0047]-[0049]), Lor teaches a client identifier to identify VPN users.
- **at least one mobile access point (MAP)**, (Lor, Abstract, Paragraphs [0031]-[0032] and [0062]), Lor teaches wireless access points.
- **at least one customer premise equipment (CPE) associated with each VPN customer**, (Lor, Paragraphs [0034] and [0099]-[0104]), Lor teaches equipment deployed in enterprise networks.
- **at least one IP service gateway (IPSG) for facilitating VPN tunneling between a MAP and a CPE**, (Lor, Fig. 2 and Paragraphs [0034], [0059] and [0062], "In the Wireless LAN environment, the corporate user can establish an extra virtual private network (VPN) tunnel between the wireless client and the corporate network.").
- **wherein each MAP is geographically remote from each IPSG**; (Lor, Fig. 1 and Fig. 8 and Paragraphs [0062] and [0094]-[0095], "Packets from the mobile client 803 are processed at the foreign agent 806, namely, the Enterprise WLAN Switch, through the AP2, 813 of the foreign subnet 805. The switch will encapsulate the actual upstream packet into an IP-in-IP packet, and send it to the home agent 802 through the tunnel."), Lor teaches a wireless access point remote from each IPSG (WLAN switch).
- **selecting a subset of IPSGs to maximize total profit resulting from provisioning a subset of VPN customers on the selected IPSGs**, (Lor, Paragraphs [0031], [0105]-[0106] and [0113]-[0117], "In centralized load balancing, the load balancing decision is made by a load balancing manager. This manager can be located anywhere in the LAN; it may also be collocated with the WLAN switch."), Lor teaches provisioning customers (load balancing) on selected IPSGs (WLAN switches).

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Lor teaches providing cheap multi-vendor support which would inherently maximize profit [0104] but does not specifically disclose the following limitations. However, Zargham in an analogous art discloses:

- ***where for each customer profit equals weighted revenue less cost,*** (Zargham, Paragraph [0015], “In particular, the present invention manages traffic, revenues, and costs, to help carriers maximize revenues, reduce network costs, optimize network routing, and increase overall profitability and service quality.”).
- ***wherein said total profit from all the customers comprises the sum of profits from each customer,*** (Zargham, Paragraph [0015]), It would be obvious to one of ordinary skill in the art at the time the invention was made that the total profit from all customers would comprise the sum of profits from each customer.

***wherein said cost per customer comprises:***

- ***a total tunnel bandwidth cost from said MAP to said CPE,*** (Zargham, Paragraphs [0007] and [0386], “[B]usiness intelligence data server 1704 includes analysis-ready data-marts to hold aggregate information on, for example, costs, revenues, traffic trends, bandwidth usage, and routing information.”).
- ***a cost of provisioning an IPSG node,*** (Zargham, Paragraph [0049], “The optimization provided by this analytical method goes beyond the traditional least cost routing (LCR) to incorporate other business criteria, such as quality of service, profit margin, bilateral agreements, available capacity, network looping, inter-carrier looping, and minimum and maximum number of selected routes.”).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Zargham into the teaching of Lor to have customer profit equal weighted revenue less cost and have each cost per customer comprise a total tunnel bandwidth cost and a cost of provisioning an IPSG node. The modification would be obvious because one of ordinary skill in the art would want the benefit of optimizing inter-network traffic which would lower costs and improve quality of service. (Zargham, Paragraphs [0014]).

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As per claims 3 and 13, Lor further discloses:

- ***wherein said total tunnel bandwidth cost comprises a dynamic tunnel bandwidth cost between said MAP and said provisioned IPSG, and a static tunnel bandwidth cost between said provisioned IPSG and said CPE,*** (Lor, Paragraphs [0104] and [0115]-[0117], “To come up with a load switching decision, it examines the two types of parameters: static and dynamic parameters.”), Lor teaches examining both static and dynamic tunnel bandwidths which would render a total tunnel bandwidth cost.

As per claims 4 and 14, Lor further discloses:

- ***wherein only a single tunnel is established between said provisioned IPSG and said CPE, even during instances where traffic from multiple MAPs are going through said provisioned IPSG to reach said CPE,*** (Lor, Paragraphs [0045] and [0094]-[0095], “The switch will encapsulate the actual upstream packet into an IP-in-IP packet, and send it to the home agent 802 through the tunnel.”), Lor teaches a single tunnel being used to transmit traffic to the customer premise equipment.

As per claims 5 and 15, Zargham further discloses:

- ***wherein in an instance said provisioned IPSG sends traffic to more than one CPE, said provision cost is counted only once,*** (Zargham, Paragraphs [0085]-[0091] and [0194], “Using a routing method such as the embodiment described above, a network operator can facilitate collaboration between its routing and network provisioning teams, which can deliver the best possible quality of service and the lowest cost.”), Zargham teaches provisioning costs including modifying routing changes. It would be obvious to one of ordinary skill in the art at the time the invention was made that the cost is counted only once.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Zargham into the teaching of Lor to count provision cost only once when a provisioned IPSG sends traffic to more than one CPE. The modification would be obvious because one of ordinary skill in the art



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would want the benefit of optimizing inter-network traffic which would lower costs and improve quality of service. (Zargham, Paragraphs [0014]).

As per claim 21, Lor further discloses:

- **wherein said MAPs provide dynamic switching and routing of data connections**, (Lor, Paragraphs [074]-[0076]), Lor teaches access points with switching and routing capabilities.
- **IPSGs provide VPN services**, (Lor, Paragraph [0031], "These switches, called Wireless LAN Switches, do not only perform Layer 2 switching, but also act as a wireless edge manager. They provide the additional functionalities like access control, firewall functions, traffic privacy and quality of service, network management, and load balancing.").

#### ***Allowable Subject Matter***

10. Claims 6 and 16 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 7-10, depend on claim 6 and contain the same allowable subject matter as claim 6. Claims 17-20, depend on claim 16 and contain the same allowable subject matter as claim 16.

#### ***Conclusion***

11. The prior art not relied upon but considered pertinent to applicant's disclosure is made of record and listed on form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TANGELA T. CHAMBERS whose telephone number is 571-270-3168. The examiner can normally be reached Monday through Thursday, 9:00am-6:30pm Eastern Time.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro, can be reached at 571-272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-270-4168.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tangela T. Chambers/

Patent Examiner, Art Unit 2617

January 2, 2009

/NICK CORSARO/

Supervisory Patent Examiner, Art Unit 2617